

A medical anthropological viewpoint introducing a novel 3D model bringing together sex, gender, and hormonal effects of an individual's chronological pathway

Keywords

Gender
Sex
Hormones
Chromosomes

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Abstract

Background: This article looks at gender differences, whether they can be created or performed and the relationship between 'sex', 'gender' and the 'body'.

Methods: I reviewed definitions and how they related to male/female, man/woman, boy/girl, XX/XY chromosomes and masculinity/femininity. The importance of biomedical advances, especially hormonal and genetic, and their interaction with anthropological writings was addressed. From the review of the literature, I wove my own clinical experience and seminal cross-cultural ethnographies. I looked at long-term gender change, compared to short-term gender reversal and legal involvement.

Results: I devised a novel concept of classifying an individual body through a chronological pathway across three axes. There should be a spectrum along each of the three axes and not just two dichotomous poles. The three axes comprise: (1) Hormone effect: Masculinity(testerogenic)/Femininity(oestrogenic/progesterogenic); (2)Chromosome: Boy (XY)/Girl (XX); (3) Gender: Male/Female.

Conclusions: The anthropological discourse concerning sex, gender and the body was a process of continual evolution. There were strong links to cultural beliefs of the person and different social models such as family, religion and the workplace. The continued discussions between medical anthropologists, bio-medics, politicians and geneticists were of paramount importance. The three axial chronological pathway produced allows each individual to be charted throughout life. © 2008 WPMH GmbH. Published by Elsevier Ireland Ltd.

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Plus ça change, plus c'est la même chose Alphonse Karr 1808–1890

A recent visit to the British Museum and, in particular, the 'Forgotten Empire', depicting the world of ancient Persia, gave me the initial impetus for starting this piece. The

Hittites (1650–1200 BC) by means of 30,000 cuneiform tablets, described subjects including medicine, religion, art and, appertaining in particular to this article, gender differences. Their descriptions of eunuchs illustrate that gender differences can indeed be 'created or performed' [1]. It could be argued

that the basic issues of sex, gender and body have been the same for thousands of years, but each generation gives the debate a contemporary twist [1–6].

Trying to separate sex/gender and how they relate to male/female, man/woman, boy/girl, XY/XX chromosomes, masculinity/femininity is fraught with difficulties due mainly to differing cultural contexts [6]. Debates have been centred on long-term gender change, compared to short-term gender reversal, how these vary culturally, appertain to the body and, importantly with the former, how legal aspects apply [7]. Anthropologists have discussed differences in male/female from exotic to real life ethnographies. They have, to a certain degree, ignored biomedical advances in hormones and genetics. Physicians, however, could be criticised on maintaining the gap between themselves and the Social Sciences.

Through this mesh of ideas I have woven ethnographic examples, both from my own clinical experience and also those from seminal cross-cultural ethnographies. To conclude, I have demonstrated what I think is a novel 3D model bringing together sex, gender and hormonal effects and illustrating how each person can be classified according to these three axes. It also demonstrates how individuals migrate along their own personal pathway chronologically, and diagrammatically illustrates aspects of the relationship between sex, gender and the body.

To begin: some definitions

Clarification of the term ‘body’ will be discussed after my first ethnographic example as it clearly illustrates the relevant characteristics; while the definition that I shall use for ‘contemporary’ is ‘living or occurring at the same time’ [8].

Gender and sex definitions can become blurred, for instance the *Concise Oxford Dictionary* has one description of gender, albeit colloquial, as *a person's sex* (1990) [8]. It is also interesting to see how meanings evolve over time. Caplan [9] mentions two versions of the *Oxford English Dictionary*, only 10 years apart, having different definitions of sex, the latter one including coitus. Barfield [10], however, comments that gender ‘refers to those culturally assigned behaviours and meanings, such as sex roles, attributed to the distinction all

human societies make between male and female.’ He further states that for ‘most scholars it is axiomatic that gendered behaviour is shaped by historical forces and thus has nothing to do with biology’. Gender is a term derived from ‘genus’ meaning ‘sort’, ‘kind’ or ‘class’ and tends to group people into dichotomous men or women [6].

Shaw [6] states that sex ‘refers to the biological characteristics located in anatomical features and physiological processes that people use, in ways that are socially and culturally mediated and not always dichotomous or fixed, to define maleness or femaleness’. It is, therefore, different to sexuality, which is concerned with sexual desire and behaviour. For thousands of years the genitals were considered to be a ‘one sex model’ where women had the same genitals except that ‘theirs are inside the body and not outside it’ [11]. Conversely, Davis & Whitten [12], in their cross-cultural study of human sexuality, commented that several anthropologists considered there to be a third sex. Herdt [13] edited a 600-page book discussing a third sex and gender. It could be argued that it is perhaps better to have a continuum along two axes, one for gender and the other for sex, rather than placing a *mélange* of differing characters in to a third category. However, in defence of Herdt, he does conclude that it is ‘rather difficult to create and maintain third sex and third gender categories’.

In general, according to Miller [14] masculinity/femininity, man/woman are gender related. However, this does tend to ignore the effect of sex hormones, which can have both physical and psychological effects on the body [15,16]. For instance, in my ethnographic example of a patient of mine, C, described later in this article, he wanted to be a man, gender wise. Notwithstanding this he started producing oestrogenic hormones, which resulted in him growing breasts and gave him a softer, more rounded figure, i.e. a feminising effect, which went against his individual body desires. Later post-surgery he was given testosterone to enlarge his penis and male pattern body hair, i.e. a masculinising effect. Thus, gender differences had been created.

Female/male can refer to biological sex configurations or cultural gender differences. Sex tends to be governed by ‘genital conformation’ [14]. This is explored in the ethnography ‘It’s a

girl, it's a boy' [17]. However, it can be contrasted with my own cases, which were determined by chromosome analysis. For instance, although a person with XY chromosomes may produce sperm and somebody with XX chromosomes might bear children, we can not necessarily predict gender when considering chromosomes, genitals or hormones [14].

The recent anthropological perspective

It is important to look briefly at anthropology from a recent historical perspective so that contemporary issues can be addressed. The 1970s produced much ethnographic study concerning sex and gender. This, in particular, revolved around the study of women, by women, which had largely been ignored, excepting the work of Mead in 1935 and 1949, cited by Miller [14]. In addition, Moore [18,19] has continued carrying the women's baton in her writings on sex and gender.

Some workers, namely Rosaldo [20], have looked at the dominance of males over females. However, male dominance has not always been the case, since 30,000 years ago women were seen as dominant, as illustrated by artefacts found depicting women very often appearing pregnant and with milk-filled breasts. Experts consider this is in recognition of their close link with nature, especially fertility, and, therefore, strength [5,21]. Ortner [21] continued this theme, equating females to 'nature' and males to 'culture' but these are social constructs. The waters were muddied by Spiro [22] when considering male/female dominance. He showed that in the formal sense the Burmese male has authority 'awza' but is subordinate to females in the informal sense, resulting in her having the power 'Ana'. Thus Burmese women have one of the highest levels of status of all Asian females and great equality when examining legal, economic or social factors.

Concepts of body, sex and gender

My first ethnographic example is from my own clinical experience, using other cross-cultural contemporary studies to compare and contrast, and examine how it relates to the body.

A's mother, a 28 year old bank clerk married to a self-employed electrician living in a English market town, had had a normal pregnancy. She delivered A, without a hitch, a sister for her first daughter. I have been their family doctor for the last 22 years. When A was two I referred her to the local surgeons because her mother had found a lump that went up and down in A's groin, this was typical of an inguinal hernia, albeit that it wasn't present when I examined A.

My feelings went out to the junior surgeon who operated on A and who found a testicle as well as a hernia. What a dilemma, what a choice to make, for A had both a vagina and a testicle. Does he remove the testicle or not? Very sensibly he sewed A's incision back up and left the testicle as there were difficult ethical decisions to make. I then had a very difficult consultation discussing with the parents what they could do next. This was 7 years ago. I supported them through the operation to remove both testes. A has not been told as yet, but her parents have gone through various stress-related somatic illnesses.

This ethnography demonstrates clearly the intricacies of body, sex-delineated and gender. Using the seminal paper of Scheper-Hughes & Lock [23] one can look at their three concepts of 'body' and how they relate to sex and gender, namely the individual body, the social body and finally the body politic. Thus, the individual body is how the separate parts of the body psyche, self and physical operate together, which may vary in health and sickness. Using the testicle as a focal point, would A have preferred to keep her testicles and have a penis fashioned surgically later? That would mean a change of both her gender and sex (as written on her birth certificate). Also, it is a medical fact that leaving her testicles inside her body would leave her open to the risk of cancerous changes in them [24].

Social body, as Douglas [25] suggested, represents 'uses of the body as a natural symbol' in considerations of society, nature and culture. Furthermore, the social body in sickness 'offers a model of social disharmony, conflict and disintegration' [23]. A's family on hearing the news about the testicle were totally distraught, and expressed features of psycho-somatic illness as transference ensued. As Fausto-Sterling [26] wrote 'One can only attempt to imagine the anguish of the parents'.

Finally, the body politic pertains to the 'regulation, surveillance, and control of bodies' [23]. As far as A was concerned her parents received a letter from the hospital saying that due to National Health Service (NHS) cuts her operation would have to be transferred to another hospital 80 miles away. They were terrified that details of her condition would leak out with the increased correspondence and bureaucratic incompetence that beleaguers such an organisation. Fortunately a robust letter from myself to the chief executive ensured her ongoing care with her usual consultant, who was unaware of the 'regulation, surveillance, and control' that was being imposed!

Contrasting the case of A with Nanda's [27] ethnography concerning the *hijras* of India, in a similar situation she would have fitted in as a female eunuch, i.e. a female unable to menstruate, or perhaps a hermaphrodite if her testicles started functioning. *Hijras* describe themselves as 'neither man nor woman', some are 'real' or 'born that way' and some are 'made *hijras*' specifically creating emasculated men by two diagonal groin incisions, called *nirvan* (rebirth), to remove the genitalia. Interestingly, I wondered whether they exist in the United Kingdom (UK); on searching the Internet it produced what appeared to be sites for male prostitution. Nowadays it is usually the working classes who use the services of *hijras* at weddings and births where *hijras* 'challenge the boundaries of sex, gender and hierarchy' [27] for monetary gain, else a curse ensues. If, on inspection of the child's genitalia, there is ambiguity then the *hijra* may claim it as one of their own.

Public display of sex and gender

Another contemporary debate is the public display of sex and gender; people can 'employ their bodies in forms of hostile display against the norm' [28]. This was admirably illustrated by Schultheiss et al's article on genital piercing [29]; arguably a less drastic form of body alteration than that of the *hijras*. They commented on the age-old technique of infibulation, which occurs cross culturally either in hostile display or socially constructed as a means of contraception. From my own personal experience of performing several thousand vasectomies, I

have come across a few who had various bits of metal work piercing their genitalia as well as multiple pieces of metal on more public display.

Another important aspect of public display is how theatre is related to sex, gender and the body. Pantomime is thought to have Greek and Roman connections [30], but essential ingredients include Dames and Principal Boys. Chipping Norton, my hometown, is famous for its 'panto' and I have been hauled up on stage to 'dance' with the dame – a ritual public humiliation!

Dames played by men are usually mothers, very often husband-seeking widows or, rarely, frustrated spinsters. They are heavily but cruelly made up (Figure 1) and wear many layers of outrageous clothes that usually come off but not in an overtly sexual manner; indeed it pokes fun at striptease. Double entendres abound over the heads of children, who look upon them as grandmother figures. The sex/gender issues do not appear to be threatening as they come from the dame. 'Ooh you'll never guess what happened to me!' is not as 'violent' as 'Ooh you'll never guess what I did to her' even though they are both spoken by a man. Ardener [30] cites Davies, who felt that they should be 'a nice man being a nice lady'. Dames, therefore, are not obviously transvestites as no fetish is implicated and not transsexual because it is deliberately easy to look through the disguise.

Principal boys, conversely, are usually played by young 'leggy' actresses but sometimes by overtly camp homosexual actors. What we have then is a transient, very 'English,' form of gender change and surely Shakespeare is the master at gender bending!

Gender change

The second ethnographic example demonstrates the next contemporary debate, the dilemma of gender change; it also provides a further insight into the construct 'body'.

B, an ex-commando, now a self-employed computer manager aged 52 and married with three teenage children, was referred to my sexual dysfunction clinic complaining of erectile dysfunction (ED). Something, however, didn't seem right about the consultation; he then burst into tears saying that in fact he wanted a sex change operation. After further discussion we agreed



Figure 1 The Pantomime Dame. Acknowledgements to: Adam Russell-Owen as Mrs. Sinbad, the 'Dame' in the 2004 *Sinbad and the Diamond Princess* pantomime, Chipping Norton Theatre. Paul Need; Photographer. Rebecca; Administrator, The Theatre, Chipping Norton.

that the next move ought to be a referral to a specialist psychiatrist, which would probably mean him going to London. He was desperate that his anonymity should be maintained in case he decided to try to carry on as he was.

Such sex-change or gender modification operations have been carried out for many years. Indeed the earliest that I could find was performed by Sabuncuoğlu who wrote *Cerrahiyyetü'l Haniyye* (Royal Surgery) when he was 83 years old in 1468. That book has detailed drawings and descriptions of 'the treatment methods for hermaphroditism' [1].

B demonstrates the situation where, in my clinical experience, such patients display overt signs of extreme masculinity (being a com-

mando) as they are aware at an early stage of being in the 'wrong body' as in their individual body they feel that they are female. They revert to this 'over masculinisation' in order to try to suppress their real bodily feelings. If they do decide to change their gender and display it to the social body there may be discrepancies in what the individual body and the social body expect to be the norm. The individual is very aware in their own mind of how they consider they should present their new gender. This sometimes excludes social body expectations of norm in culture and class or body politic ideas of regulation and control.

My own examples include a man who underwent a 'sex change' procedure and became a female priest – however the glamorous

makeup, high heels and handbag did not fit with my own expectations of a vicar expressing devoutness and piety! Another person, a biological woman, became a man and had tattoos depicting anchors and 'mum/dad' on his forearms, which were always displayed by having rolled up shirtsleeves. Unfortunately this did not seem compatible with his profession as a solicitor. I am aware that I could be accused of being 'etic' [31], that is to say prejudiced in my view as to how these particular groups of people should behave culturally. Nevertheless, I would regard myself as an 'emic' i.e. holding the same point of view as natives of such a cultural group [10]. These clearly show how gender is not a given and that it can very much be created or performed through the body. Moore [19] comments about praxis theory and mentions Connell's notion of 'body-reflexive practice' and, in addition, that embodiment is emphasised in models of gender that stress performance.

A cross-cultural example of transsexualism from Oman is that of the *xanth*. This group of people share some of the characteristics of *B* in that their 'subjectively cherished identity seems to be that of a female' [32]. This is similar to the *berdache* members of the Plains Indians, anatomical men who dressed and worked like women and married men; they provided a classical anthropological case [10,33]. Transvestites, however, have a 'fetishistic attitude' to women's clothing. The *xanth* walk with a swaying gait, reek of perfume and wear pastel-coloured *dishdashas* (tunics), but not full female clothing. They act as passive homosexual prostitutes and women bare their faces to them, as they are not seen as men. Legally speaking, however, they retain their male status. In addition, they are not straightforward homosexuals in that they do not tend to have long relationships with another man and they do not seek sexual release for themselves. Thus, they are socially female but anatomically male and, therefore, the sexual act and behaviour confers the gender and not the genitalia. Incidentally it is fascinating to note the translation of *xanth* as effeminate, impotent and soft. It reflects the individual and social aspects of body that many of my patients and society feel about erectile dysfunction.

In the English language there is a great distinction between transvestites, transsexuals, hermaphrodites, homosexuals, lesbians

and effeminate behaviour [34]. Cross-culturally this may not always be the case. I have already commented on the *mélange* of people that are grouped together as *hijras*. Another example where there is a 'relative de-emphasis of sex and gender in local society and culture' occurs in Peletz's ethnography of Malays [34].

Gender ambiguity

My third ethnographic example depicts contemporary issues involving gender, chromosomes and the body.

I first met C in my role as School Doctor at a local boarding school. He had left his previous school because of bullying but was tall for his age (14) and seemed too pleasant for his school year who were usually sullen and truculent. His mother had written a very useful letter of introduction, explaining that C had Klinefelter's Syndrome. This is a condition where the child is born with an additional X chromosome. This gave him an XXY chromosome configuration. He was seen from time to time by a specialist to monitor his hormone levels.

About a year or so later he came to see me for an 'off games note.' After further probing it transpired that he was embarrassed because he was developing gynaecomastia, and was getting teased in the swimming pool. This was due to a hormone imbalance with a shift towards oestrogen. Consequently this necessitated a surgical referral, and subsequent removal of both his breasts. The rest of his time at school was uneventful apart from needing testosterone injections every few weeks.

C's story illustrates some interesting contemporary debates; it shows how influential hormones are when considering sex, gender and the body. From an individual body aspect he felt he was male, as adolescence progressed, the growth of breasts was deeply disturbing for him as he became uncertain of his gender. Amongst his peers, the social body, there was also uncertainty, as he appeared to be changing his gender. However, the body politic was able to step in and 'create' his original gender again, albeit that it needed regular hormone treatment. Thus, the body created in C produced an individual body that Bourdieu [35] described as 'habitus' or as Schep-

Hughes [36] wrote ‘the habituated, bodily expression of social identity, belonging and cultural affirmation’ i.e. the ‘positivity’ of the body.

Gender and sex are not fixed; furthermore they can demonstrate a ‘plurality of messages’ [30]. More specifically, each person is an individual body which may migrate through time and space. Their pathway through social body and body politic constraints can cause pressure, as illustrated by A, B, and C’s stories. They struggle to grapple with the body issues of sex and gender. History has demonstrated that this is not a new phenomenon, e.g. Joan of Arc and Catalina de Erauso both lived as men [37].

Apart from the cross-cultural examples mentioned, i.e. *xanith*, *hijras*, and *berdache*, studies exhibiting this variation in reverse include Pashke, an Albanian woman who dressed as a man for security when visiting her uncle in hospital. She carried on in this role living as a ‘sworn virgin’ [38]. Another group of women who are ‘living like men, loving like women’ are the *Tomboi* from the Southern Philippines [39].

Biomedicine has demonstrated how it can ‘correct’ genital ambiguity (A and C) and potentially can alter an adult’s given sex. During a recent lecture a series of 129 ‘gender change’ patients was presented: 75% were totally happy with the results and two had adopted a baby [40]. Thus, the body becomes the model by which socially and gendered identities can be constructed and could be considered elite in this respect.

The novel 3D model

I have expanded my concept of classifying the individual body through a chronological pathway across three axes. I propose that there should be a spectrum along each of the three axes and not just two dichotomous poles. For example along the sex axis, I portray ‘boy’ and ‘girl’ at either end, i.e. chromosome XY and XX. Boy/girl is used as these are the terms given at birth and man/woman might be confused with gender. There are, however, a range of chromosome variations such as XO and XXY. These exhibit anatomically different sexes which, may present (or not) the sex of the individual body to the social body and hence to the body politic who will legally control the sex of the

person. This regulation has brought forth a series of cases before the European Courts of Human Rights [7]. Indeed Dembour (in a paper written in French), cites Rigaux (1998) as challenging the Courts decision, with regards to transsexuals, who regarded this group of society as ambiguous being ‘In terms of marriage, was neither man nor woman and thus could not marry’.

The second axis refers to gender, that is the external expression of the body individually, culturally and socially, as a continuum between female and male. Their position upon this axis may vary over time, and can be created or performed. This is probably most easily grasped by studying Figure 2 with its examples based on the three ethnographies above.

Finally the third axis is one that denotes masculinity/femininity. In particular how the effect of hormones can influence anatomical, physiological and psychological attributes to both individual and social bodies. This can occur in spite of the sex and gender points on their axes remaining the same, and is particularly relevant to C. Once again there is gradation between the poles of masculinising hormones (e.g. testosterone) and feminising hormones (oestrogen/progesterone). These hormonal effects can be given and may change chronologically by a normal aging process. Alternatively they can be created by outside forces, legally or illegally, at different stages of life (consider C).

It is through hormones that perhaps much of gender difference can be explained. On the one hand, testosterone stimulates muscle growth, sperm production and formation of red blood cells (among many other attributes) enabling the male to be faster and stronger than the female [16]. Oestrogen and progesterone, on the other hand, essentially enable the female to achieve pregnancy and feed the product of procreation [15].

In conclusion I believe the anthropological discourse concerning sex, gender and the body is a process of continual evolution. There are strong links to the cultural beliefs of the person, and different social models such as family, religion and the workplace. With apologies to Malinowski, it is important that contemporary medical anthropologists have come off the veranda and have now pitched their tents amongst the bio-medics, politicians, and geneticists in order to

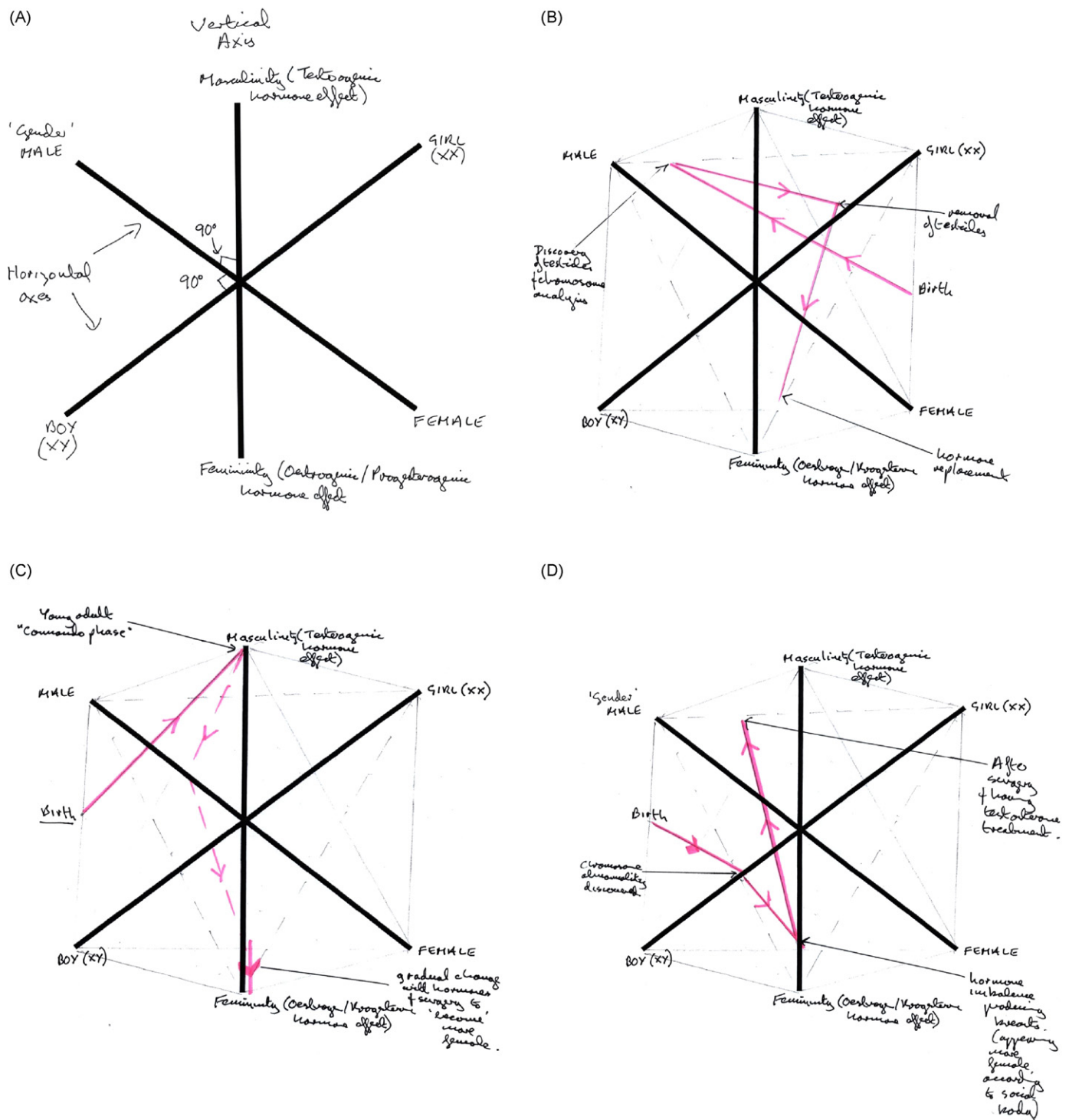


Figure 2 Classification of the body according to sex, gender and hormonal effects: (A) The three axes should be thought of as being in a three-dimensional model with masculinity/femininity as the vertical axis, male/female as the horizontal axis and boy/girl as the third axis coming off the other two axes in a perpendicular manner, running into/out of the page. (B) Ethnographic study A starting at birth and proceeding chronologically as per the arrows. (C) Ethnographic study B (male to female, sex change) starting at birth and proceeding chronologically as per the arrows. (D) Ethnographic study C (Klinefelters syndrome) starting at birth and proceeding chronologically as per the arrows.

further study. Gone are the days of anthropologists writing about the erotic and exotic. In the last couple of decades there has been rapid change in what is 'possible, proper and per-verse' [41].

'Why can't a woman be more like a man?'

Comment by Prof. Henry Higgins about Eliza Doolittle,

From *'Pygmalion'* (Shaw GB, 1913) [42]

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